

In the Office Action, all claims, 17-32, are rejected; while the drawings filed December 17, 2001 are accepted by the Examiner.

REJECTION UNDER 35 U.S.C. § 102

Claims 17-21 are rejected under 35 U.S.C. § 102(b) as being anticipated by Higashi (U.S. Pat. No. 5,300,915).

It is respectfully submitted that Higashi fails to disclose the features and the arrangement of features as stated in independent Claim 17 and dependent Claims 18-21, which depend therefrom.

It is important to note that the present invention discloses a device as illustrated in Figures 8-12 of the present invention. This is in contrast to the devices as shown in Figures 1-7 of the present application, which are illustrative of conventional devices having deficiencies. It is respectfully submitted that Higashi discloses conventional device arrangement consistent with the prior art and which is contrary to detectors of the invention as illustrated in the present application Figures 8-12.

Referring particularly to the specification at Page 12, Line 15 through Page 13, Line 3 and with reference to Figure 8, it is stated:

The present invention concerns an electromagnetic radiation (EMR) heat detecting device consisting of at least two microbridge detectors in which the "suspended" layers of the microbridges are linked between each other by a mechanical connection. These suspended layers are layers of the microbridge which are physically isolated from the substrate and held above the substrate by mechanical support devices.

This device, shown in figure 8, comprises the following elements:

- two mechanical support and electrical inter-connection 11 devices per detector;
- two heat insulation 12 devices per detector;
- an active zone sensitive to radiation 10 per detector;
- two mechanical connections 15, 15' which link the central detector 16 mechanically to neighbouring detectors 17 and 18, and which prevent attenuation of the microbridge zones the furthest away from the mechanical support devices 11.

It is clear that the Higashi arrangement does not show the active zone of a detector having bolometric material directly linked to the active zone of a neighbouring detector having such bolometric material. Note particularly the quoted specification at Pages 12-13, as quoted above, which states “an active zone sensitive to radiation 10 per detector” and “two mechanical connections 15, 15' which link the central detector 16 mechanically to neighbouring detectors 17 and 18. . . .” Higashi does not show at least these features.

Further, Higashi has the significant deficiency that its layer of silicon nitride 20 is in direct contact with downwardly extending silicon nitride layers 20', 22', which make up four sloping support legs for the elevated detector level. The elevated detector level 11 has silicon nitride layers 20, 22 continuous with legs 20', 22' deposited at the same time. In other words, the detector level is in direct thermal contact with the lower level via support legs.

The present invention directly avoids the aforesaid Higashi arrangement in order to enhance thermal isolation of the upper level.

In accordance with the arrangement of the present invention, the performance of the detector is improved since the sensitivity of the specific active zone of detection is thermally isolated from other parts of the device and particularly is isolated from the lower level containing the integrated circuit. The Higashi arrangement does not isolate the active detection zone (upper level) from the integrated circuit level (lower level).

Higashi also does not implement a specific link between two neighbouring detectors by means of additional mechanical connections (linkages) between active areas of neighboring detectors. Further, Higashi does not show such linkages separate from the mechanical support.

It bears repeating that Higashi incurs the same deficiencies in performance as the detectors of the prior art and is most closely associated with the prior art Figure 5 of the present specification that shows interconnections between the upper level and the lower level as in Higashi. This drastically impairs the thermal isolation of the active zone of the microbridge and significantly decreases the sensitivity and performance of the detector.

REJECTION UNDER 35 U.S.C. § 103

Claims 22-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Higashi in view of Hornbeck (U.S. Pat. No. 5,021,663).

Claims 22-32 are directed to a process for forming the device of Claim 17 and depend directly or indirectly on Claim 17.

It is respectfully submitted that Hornbeck does not supply the deficiencies of Higashi.

Hornbeck does not teach or suggest the linking of the active areas of two neighbouring detectors via mechanical connections. Hornbeck does not teach or suggest the mechanical connections separate from the mechanical support devices.

Accordingly, the process of Claim 22 is for manufacturing a device in accordance with Claim 17 and the device of Claim 17 has features contrary to Higashi. Hornbeck does not supply the deficiencies of Higashi as to the missing features and their arrangement, and does not teach or suggest how to form such missing features and arrangement of same.

Note that Higashi forms a base of a dissolvable glass or other dissolvable material. Next, a nitride layer and a silicon nitride layer are deposited over the dissolvable material in order to form layers 20, 21 and 22 of the elevated detector level and, at the same time, form support legs 20', 22', which are essentially continuous with layers 20 and 22 of the top layer.

There is no suggestion in Hornbeck to form an arrangement by thermally isolating the top detector layer 20, 22 from the support legs 20', 22'. Such a thermal isolating is contrary to Hornbeck and contrary to Higashi. Further, the present invention, as defined in Claims 22-32, does not recite deposition of layers equivalent to 20, 22 and 20', 22' of Higashi.

CONCLUSION

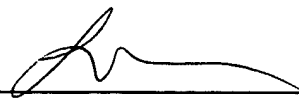
It is believed that all of the stated grounds of rejection have been properly rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete

response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested.

Furthermore, Applicants request a telephone interview between their attorney and the Examiner to discuss this matter further.

Respectfully submitted,

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